HISTORIC PROPERTY INVENTORY FORM

State of Washington, Department of Community Development
Office of Archaeology and Historic Preservation
111 21st Avenue Southwest, Post Office Box 48343
Olympia, Washington 98504-8343 (206)753-4011

IDENTIFICATION SECTION

Field Site No. 116-B **OAHP No.** _____ **Date Recorded** 17-Dec-98
Site Name Historic Reactor Exhaust Stack
Common
Field Recorder Jim Sharpe
Owner's Name U.S. Department of Energy, Richland Operations Office
Address P.O. Box 550
City/State/Zip Code Richland, WA 99352

Status

- [x] Survey/Inventory
- [ ] National Register
- [ ] State Register
- [ ] Determined Eligible
- [ ] Determined Not Eligible
- [ ] Other (HABS, HAER, NHL)
- [ ] Local Designation

Photography

Photography Neg. No. 106669-22cn
(Roll No. & Frame No.)
View of Reactor Exhaust Stack
Date

Classification [ ] District [ ] Site [ ] Building [x] Structure [ ] Object
District Status [X] NR [ ] SR [ ] LR [ ] INV
Contributing [X] **Non-Contributing** [ ]
District/Thematic Nomination Name Hanford Site Manhattan Project and Cold War Historic District

Description Section
Materials & Features/Structural Types
Building Type Industry
Plan
Structural System Reinforced Concrtet
No. of Stories

Roof Type

- [ ] Gable
- [ ] Hip
- [ ] Flat
- [ ] Pyramidal
- [ ] Monitor
- [ ] Other (specify)
- [ ] Gambrel
- [ ] Shed

Cladding (exterior Wall Surfaces

- [ ] Log
- [ ] Horizontal Wood Siding
  - Rustic/Drop [ ]
  - Clapboard [ ]
- [ ] Wood Shingle
- [ ] Board and Batten
- [ ] Vertical Board
- [ ] Asbestos/Asphalt
- [ ] Brick
- [ ] Stone
- [ ] Stucco
- [ ] Terra Cotta
- [X] Concrete/Concrete Block
- [ ] Vinyl/Aluminum Siding
- [ ] Metal (specify)
- [ ] Other (specify)

Roof Material

- [ ] Wood Shingle
- [ ] Wood Shake
- [ ] Composition
- [ ] Slate
- [ ] Tar/Built-up
- [ ] Tile
- [ ] Metal (specify)
- [X] Other (specify) Open Air
- [ ] Not visible

Foundation

- [ ] Log
- [ ] Post & Pier
- [ ] Stone
- [ ] Brick
- [X] Not visible
- Concrete: [ ] Block [ ] Poured [ ] Other (specify)
- Concrete Base

(Include detailed description in **Description of Physical Appearance)**

Integrity	Intact	Slight	Moderate	Extensive
Changes to plan	X			
Changes to windows				
Changes to original cladding				
Changes to interior				
Other (specify)				

LOCATION SECTION

Address Structure, 116-B, 100 Area
City/Town/County/Zip Code Richland/Benton County/99352
Twp. 13 N. **Range** 25 E. **Section** 11 **I/4 Section** NE **1/4 1/4 Sec** SW
Tax No./Parcel No. **Acreage**
Quadrangle or map name Vernita Bridge Washington, 1986
UTM References Zone 11 **Easting** 297440 **Northing** 5167200
Plat/Block/Lot
Supplemental Map(s)

High Styles/Forms (Check one or more of the following)

- [ ] Greek Revival
- [ ] Gothic Revival
- [ ] Italianate
- [ ] Second Empire
- [ ] Romanesque Revival
- [ ] Stick Style
- [ ] Queen Anne
- [ ] Shingle Style
- [ ] Colonial Revival
- [ ] Beaux Arts/Neoclassical
- [ ] Chicago/Commercial Style
- [ ] American Foursquare
- [ ] Mission Revival
- [ ] Spanish Colonial Revival/Mediterranean
- [ ] Tudor Revival
- [ ] Craftsman/Arts & Crafts
- [ ] Bungalow
- [ ] Prairie Style
- [ ] Art Deco/Art Moderne
- [ ] Rustic Style
- [ ] International Style
- [ ] Northwest Style
- [ ] Commercial Vernacular
- [ ] Residential Vernacular (see below)
- [X] Other (specify) Industrial Venacular

Vernacular House Types

- [ ] Gable Front
- [ ] Gable Front and Wing
- [ ] Side Gable
- [ ] Cross Gable
- [ ] Pyramidal/Hipped
- [x] Other (specify) Circular vertical cement exhaust stack

NARRATIVE SECTION

Study Unit Themes (check one or more of the following)

[ ] Agriculture	[ ] Conservation	[ ] Politics/Government/Law
[ ] Architecture/Landscape Architecture	[ ] Education	[ ] Religion
[ ] Arts	[ ] Entertainment/Recreation	[ ] Science & Engineering
[ ] Commerce	[ ] Ethnic Heritage (specify)_____	[ ] Social Movements/Organizations
[ ] Communications	[ ] Health/Medicine	[ ] Transportation
[ ] Community Planning/Development	[ ] Manufacturing/Industry	[x] Other (specify) Manhattan Project & Cold War Era
	[ ] Military	[x] **Study Unit Sub-Theme(s)** Waste Management (air)

Statement of Significance

Date of Construction 1943-1945 Architect/Engineer/Builder E.I. Du Pont De Memours & Company

[x] In the opinion of the surveyor, this property appears to meet the criteria of the National Register of Historic Places.
[x] In the opinion of the surveyor, this property is located in a potential historic district (National and/or local).

The 116-B Reactor Exhaust Stack was an operational support structure for the 105-B Reactor operations. It was located on the south side of the 105-B Reactor Building and was part of the reactor gas and exhaust air system designed to discharge low level contaminated air to the atmosphere at altitude and dilution factors that would be protective of workers health. The stack was in operation from 1944 to 1968.

It is the conclusion of the U.S. Department of Energy that the 116-B Reactor Exhaust Stack, through its role in waste management, is eligible for inclusion in the National Register of Historic Places under Criterion A as a contributing property within the Hanford Site Manhattan Project and Cold War Era Historic District.

Description of Physical Appearance

The 116-B Reactor Exhaust Stack (132-B-2) was located between the 105-B Reactor and the 115-B Building. The structure was connected to both buildings by concrete ventilation ducts. Initially, low-level contaiminated air moved in the reactor from areas of less contaminated zones through more contaminated zones prior to being discharged through the stack. In 1960 a confinement project designed to minimize the release of radioactive material from the reactor building was installed. The confinement project diverted air via an above ground aluminum duct and an underground, reinforced concrete duct to the 117-B Filter Builidng. The exhaust stack received filtered air from the 117-B Filter Building prior to being released into the atmosphere.

The exhaust stack was 200-feet above grade and 10-feet below grade and was 16-feet 7-inches in diameter at its base and 9-feet 6-inches diameter at the top. The walls were 1.5-feet thick at the base and 1-foot thick at the top. The exhaust stack rested on an octagonal shaped base 18-feet 5-inches in diameter that was supported by another octagonal shaped foundation 27-feet by 6-feet thick. Near the base of the exhasut stack was a steel door that allowed access into the stack. Construction of the structure required 595 cubic yards of concrete.

Major Bibliographic References

Bechtel Hanford, Inc. 1994. *"Pre-Existing" Conditions Survey of Hanford Site Facilities by Bechtel Hanford, Inc* ., BHI-00221, Richland, Washington.
U.S. Department of Eenergy. 1992. *Remedial Investigation/Feasibility Study Work Plan for the 100-BC-1 Operable Unit, Hanford Site, Richland, Washington. DOE/RL-90-07. Richland, Washington.*
E. I. Du Pont De Memours & Company, INC. 1945. *History of the Project Vol. III.* HAN-10970. Richland, Washington.
UNC Nuclear Industries, 1984. *100 Deactivated Area Pictorial Review.* UNI-2780. Richland, Washington.
Westinghouse Hanford Company. 1994. *100-B Area Technical Baseline Report.* WHC-SD-EN-TI-220. Richland, Washington.